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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,017	07/30/2003	Martin Kreuzer	TRW(ASG)6675	7765

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EXAMINER

KIM, CHONG HWA

ART UNIT PAPER NUMBER

3682

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,017

Applicant(s)

KREUZER, MARTIN

Examiner

Chong H. Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 10 recites the limitation wherein the pump moves the fluid in a stochastic process. The specification, as originally filed, discusses about the possibility of applying stochastic process to move the fluid on page 5, lines 8-11. It is not clearly described how one of ordinary skill in the art can make and use the invention, particularly the stochastic process to move the fluid.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4, 7-9, 11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Bengler, DE 19852315.

Bengler shows, in Figs. 1-4, a safety system comprising a vehicle steering wheel comprising a steering wheel rim 2; at least one tube 4 which is filled with a fluid and arranged in the steering wheel rim; and a device for generating a pressure wave in the fluid; the device being designed and the tube being arranged such that the pressure wave generates a haptic signal, able to be perceived by a driver, on a surface of the steering wheel rim; wherein the tube runs concentrically to a rotation axis of the steering wheel along the steering wheel rim; wherein the fluid is a liquid; wherein the device is a pump (inherent since the pressure in the fluid changes); wherein the pump is arranged in a region of a hub of the steering wheel; wherein the pump sets a predetermined volume of the fluid into an oscillating movement; wherein the device is designed such that the pressure wave in the fluid brings about a vibration movement of the steering wheel rim (inherent since the changes in fluid pressure in itself causes vibration); and wherein the device generates a pressure wave running along the circumference of the steering wheel rim, seen in a direction of the steering wheel's rotational axis; the safety system further comprising an electronic unit (inherent since the steering wheel's haptic signal is based on the condition of the environment surrounding the vehicle such as traffic condition, obstacles on the road, and etc as disclosed in col. 2, lines 2-28) and at least one sensor (the sensor that senses the surrounding condition of the vehicle) connected with the electronic unit, the electronic unit being designed such that in response to a signal of the sensor, the electronic unit actuates the device for generating a pressure wave.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengler in view of Kurata et al., U.S. Patent 4,547,655.

Bengler shows, as discussed above in the rejection of claim 1, the steering wheel comprising the steering wheel rim with a cover that covers the tube, but fails to show the cover being a leather.

Kurata et al. shows, in Fig. 7, a steering wheel comprising a steering wheel rim with a cover 22 that is made of leather.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the leather cover as taught by Kurata on the metal or plastic rim gripping surface of Bengler in order to provide a better grip by preventing slipperiness between the hands and the steering wheel so that a better operating condition is produced.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengler.

Bengler shows, as discussed above in the rejection of claim 1, the steering wheel comprising the steering wheel rim having a liquid filled tube, but fails to show the fluid being either air or glycol. However, because these fluid materials were art-recognized equivalents at the time of the invention as means to be pressurized for a tactile application where it is

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immaterial whether the fluid is air or some other known stable liquids, one of ordinary skill would have found it obvious to substitute air or glycol for the liquid used in Bengler.

Furthermore, since applicant has not disclosed that having the specific fluid in the tube solves any stated problem or is for any particular purpose and it appears that the haptic signal would be produced equally well with the fluid being any stable fluid, it would have been obvious to modify the liquid of Bengler with either air or glycol. (See Huang, U.S. Patent 5,355,552 showing a steering wheel having pumped air in Fig. 16; Sugiyama et al., U.S. Pub No. 2002/0033389 A1 disclosing a steering wheel that can be pumped with engine coolant or hot air from engine to heat the rim in paragraph [0003]; Germuth-Loffler et al., US Pub No. 2002/0166407 A1 disclosing in claim 4 that glycol can be included in the heat accumulating mechanism in the steering wheel; and Noda et al. U.S. Patent 4,640,340 describing the liquid 100 can be glycol in col. 3, line 59.)

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengler in view of Noda et al., U.S. Patent 4,640,340.

Bengler shows, in Figs. 1-4, a safety system comprising a vehicle steering wheel comprising a steering wheel rim 2; at least one tube 4 which is filled with a fluid and arranged in the steering wheel rim; and a device for generating a pressure wave in the fluid; the device being designed and the tube being arranged such that the pressure wave generates a haptic signal, able to be perceived by a driver, on a surface of the steering wheel rim; wherein the steering wheel further comprises the steering wheel rim with the tube being disposed in the rim at three separate grip locations, but fails to show the tube being extended over at least 240 degrees along the rim.

Noda et al. shows, in Fig. 1, a steering wheel comprising a steering wheel rim with a tube 12, wherein the tube extends over at least 240 degrees along the circumference of the steering wheel rim seen in a direction of the steering wheel's rotational axis.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the tube being located at the limited gripping location of Bengler with the tube that extends around the rim as taught by Noda et al. in order to provide a haptic signal that can be felt throughout the rim so that the driver can be alerted more effectively.

Response to Arguments

9. In response to the applicant's argument that "one of ordinary skilled in the art would be able to create pressure waves with randomly chosen time intervals between the single pulses without valve (perhaps meant 'undue') experimentation," referring to the enablement rejection, it is the Examiner's view that the claim subject matter as recited in claim 10 is not clearly described in the specification as it is required in the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 recites the limitation "said pump moving a predetermined volume of said fluid according to a stochastic process" in lines 8-9. It is understood that the word "stochastic" means "random, specifically involving a random variable." However, it is not clear how the pump moves according to a stochastic process. Some of the questions that can be raised are as follow:

- 1) Is there only one stochastic process to move the pump that is so well known in the art?
- 2) If there is only one stochastic process, then what is it?

3) If there are more than one stochastic process to move the pump, then what is the best mode contemplated by the inventor to carry out his invention, as stated in the 1st paragraph of 35 U.S.C. 112?

4) What is it mean by “according to”? Does the language mean that the pump is structurally shaped or formed to produce the stochastic process? Or does it mean that the pump is randomly operated by some sort of random electronic signals? Or does it mean that the pump operates in a regular interval (the oscillation as mentioned on page 5, line 9 in the specification) but connected in some way to a stochastic process that is applied to some device/s other than the pump itself?

As discussed above, the specification does not clearly contain a written description concerning the invention according to a stochastic process. It appears that the applicant has explained that the stochastic process involves “randomly chosen time intervals between the single pulses.”

However such description is not included in the specification as originally filed and such process appears not to be the only inherent process.

10. In response to the applicant’s argument that Bengler fails to show a device for generating a pressure wave in the fluid, it is reminded that the recitation starting with “for...” is generally considered an intended use (or functional) language and thus not given patentable weight. As long as the device in the prior art is capable of generating a pressure wave in the fluid, then such limitation is met by the prior art. Furthermore, the device of Bengler is for generating a pressure wave in the fluid. The Abstract of Bengler states that the device has “an arrangement for varying the pressure of the fluid.” If there is a means to “vary” the pressure, then it can be construed that the device generates a pressure wave in the fluid. Furthermore, there is no disclosure by Bengler

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that there is “a gradual increase of fluid pressure in the chamber,” or there is a “quasi-static pressure increase” as the applicant suggests.

11. In response to the applicant’s contention that “to generate a pressure wave, the amplitude of the pressure increase has to be high and the variation in time of the pressure increase has to be short,” it is the Examiner’s understanding that the definition of the word “wave” is;

a disturbance or variation that transfers energy progressively from point to point in a medium and that may take the form of an elastic deformation or of a variation of pressure, electric or magnetic intensity, electric potential, or temperature

as found in Merriam Webster’s Collegiate Dictionary 10th Edition. Furthermore, the applicant’s definition of the pressure wave, as set forth in the Argument, is not found anywhere in the specification. Therefore, the applicant’s contention, to generate a pressure wave is to have a high amplitude and short variation in time of the pressure increase, is at least a misapplication to support the applicant’s basis for his argument if not introduces new matter issue into the disclosure of the present invention as originally filed.

12. In response to the applicant’s argument that the leather cover of Kurata et al. would prevent the driver from locating the fluid chamber to grip his hands thereon and prevent the haptic signal to be felt by the driver, it is the Examiner’s view that the covering of the fluid chamber by the leather cover as taught by Kurata et al. would not destroy the Bengler’s device. When the fluid chamber 4 of Bengler is covered by the leather, it would still form some sort of a “bulge” that would easily be recognized by the driver. Even if there is no “bulge”, the location of the fluid chamber is fixed, as shown in Figs. 1 and 2 of Bengler, thus can easily be located by the driver. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed

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invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

13. In response to the applicant's request for an affidavit pursuant to 37 CFR § 1.104(d)(2) to support the Examiner's assertion that the air and glycol are art-recognized equivalent to the liquid as disclosed by Bengler, it is reminded that such request cannot be applicable in this case.

It is stated in 37 CFR § 1.104(d)(2);

When a rejection in an application is based on facts within the **personal knowledge** of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons. (emphasis added)

The obviousness rejection of claims 5 and 6 over Bengler is based on art-recognized equivalent that is a common knowledge available to a person of ordinary skill in the art. It certainly is a common knowledge that any stable liquid or fluid can be pumped into a chamber to act as either a cushion, or a temperature regulator, or a haptic device. No matter what the liquid or fluid is used for, if the liquid or fluid is stable enough for use for general consumers, particularly in the art of steering wheel, then such liquid or fluid can be substituted for the liquid used in Bengler. As highlighted above, the "personal knowledge" referring to in 37 CFR § 1.104(d)(2) is not the same as the "common knowledge" as discussed above. And the rejection in the present application is **not** based on facts within the "personal knowledge", but rather on the common knowledge available to a person of ordinary skill in the art at the time the invention was made. Therefore, it is the Examiner's view that the applicant has wrongly applied the Patent Rule.

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Nevertheless, the Examiner has provided three additional references that teach the usage of air and/or glycol in the steering wheel art as submitted herein.

14. In response to the applicant's argument that the device of Bengler fails to generate vibration, it is the Examiner's view that Bengler shows the device designed such that the pressure wave in the fluid brings about a vibration movement of the rim. Claim 11 recites the limitation, "said device being designed such that..." in lines 8-10. The recitation after such language is considered a functional limitation. Therefore, if the device of Bengler is capable or is designed such that the pressure wave in the fluid brings about a vibration movement of the rim, then the device of Bengler meets the requirement of anticipation. Furthermore, the device of Bengler creates the pressure wave as discussed above. If the pressure wave is created, then it can be concluded that such wave would create some sort of vibration, because the vibration can be construed to be a form of a wave.

15. In response to the applicant's argument that the device of Bengler fails to generate a pressure wave running along the circumference of the steering wheel rim, it is the Examiner's view that such subject matter is inherently shown by Bengler. It is a common knowledge that when a liquid or fluid is forced into a chamber by a pump and the pressure is varied by the pump, then the liquid or fluid experiences the pressure wave. This wave moves in the direction from inlet of the chamber to the distal ends in the chamber. No matter where the inlet is located in the chamber of Bengler, there is at least some degree of the direction, for instance as in vectors, being along the circumference of the rim. Therefore, it can be construed that the pressure wave generated by the device of Bengler runs along the circumference of the steering wheel rim.

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16. In response to applicant's argument that the device of Noda et al. is completely unrelated to the present invention and thus would not be combinable with Bengler, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Furthermore, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Noda et al. teaches the a device for generating a haptic signal (in this case, generating different temperatures in the rim) that can be felt by the operator along the circumference of the steering wheel rim at least 240°. Obviously, Bengler lacks such extension of the gripping area. Therefore, it would have been obvious to learn from Noda et al. to provide a wider range of gripping area so that the haptic signal can be felt more effectively.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Steering wheel having fluid or liquid disposed therein.

Germuth-Loffler et al., U.S. Pub No. 2002/0166407 A1

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Sugiyama et al., U.S. Pub No. 2002/0033389 A1

Huang, U.S. Patent 5,355,552

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

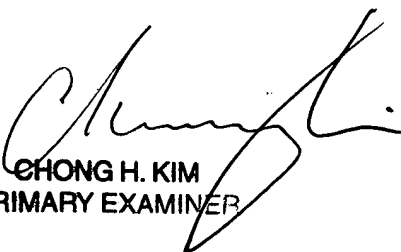
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (571) 272-7108. The examiner can normally be reached on Monday - Friday; 6:00 - 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

chk
October 5, 2006


CHONG H. KIM
PRIMARY EXAMINER